Abstract

An improved circuit board assembly includes a cover or other member disposed adjacent to the substrate and, for example, spaced therefrom so as to define a plenum. Self-aligning heat sinks (or other heat dissipative elements) are spring-mounted (or otherwise resiliently mounted) to the cover and, thereby, placed in thermal contact with one or more of the circuit components. Flow-diverting elements are provided, e.g., so that the overall impedance of the board substantially matches that of one or more of the other circuit boards in a common chassis. The circuit board cover can be adapted to provide thermal and/or electromagnetic emission control, as well as shock and vibration. A connector arrangement provides electrical, mechanical and/or other operational coupling between the circuit board and a chassis regardless of whether the board is disposed in a slot on a first (e.g., upper) side of a source of cooling air for the chassis or on a second (e.g., lower) opposite side of that source. A circuit board can have one or two portions, each with an air flow inlet edge through which cooling air flow is received and an air flow outlet edge through which the air flow exits. An improved chassis for mounting of such circuit boards can have a center air inlet. It can also have a circuit-board insertion slot with a first air flow aperture disposed adjacent to a first edge of an inserted circuit board and a second apertures disposed adjacent to a second edge of the board. These apertures can be sized so that the impedance to air flow to a circuit board inserted in the slot substantially matches that to one or more other boards in the chassis. Such slots can form part of a card cage that is vacuum or dip brazed, or manufactured by an alternate process yielding a cage of desired structural stiffness and air-flow/interference sealing. The circuit boards and chassis can include an air and/or electromagnetic interference (EMI) seal which forms as the circuit board is inserted into the chassis slot.